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FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF THE SECRETARY

March 9, 1993

Federal Communications Commission
1919 M. St. Suite 222
Washington, DC 20554

Attn: Comments on Docket 92-235

Commissioner:

This letter is written on behalf of the Linn County Fire Defense Board which represents eleven Fire Suppression and EMS agencies in Linn County, Oregon. We have a number of concerns with the impact Docket 92-235 will have on public service agencies in our area, let alone the entire state. These concerns are as follows:

- 1) Budgetary
- 2) Mutual Aid Agreements
- 3) State Conflagration Act
- 4) Technology Available
- 5) Repair Technician Capability

Public safety in the State of Oregon is already feeling budgetary restraints due to Ballot Measure 5, this impacted by the probable cost associated with FCC Docket 92-235 will be devastating. In our county alone it will cost thousands to millions of dollars to meet the requirements of this document. To meet the 1996 deadlines leaves everyone wondering whether to modify and add to present systems to have the same coverage or to buy new systems that by 2004 may be obsolete.

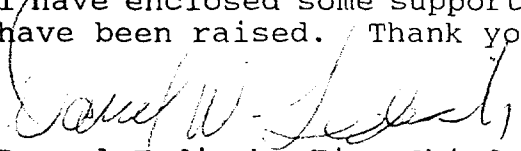
As of this date, local radio manufacturers representatives say the technology is not available to meet the requirements of the docket in the year 2004.

There are extensive mutual aid agreements in our area and if one agency can afford to go to the new technology, but other cannot, they will not be able to communicate with one another. This same problem applies when the State Conflagration Act is put in motion as it has quite often the last few summers. Agencies are just being able to get on-line the communications needed to talk with one another now, let alone have to find the funds to start all over again with new technology.

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Along with new technology will come the need for new repair equipment and new training to be able to repair this equipment. I ponder the question of how much this will cost and how radio repair technicians will be able to afford this without raising the cost to agencies, another expense that local government will have a hard time funding.

In closing, I ask that you reconsider the impact of this docket. I have enclosed some supporting documentation for the concerns that have been raised. Thank you for your time in this matter.


Darrel Tedisch, Fire Chief
Albany Fire Department
Linn County Fire Defense Board

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DEPARTMENT
STATE POLICE

GENERAL
HEADQUARTERS

TO: PUBLIC SAFETY RADIO USES IN OREGON

SUBJECT: FCC DOCKET 92-235

FCC docket 92-235 has some serious and costly effects on public safety in Oregon, as well as the rest of the nation. The reasoning behind this docket is centered around an attempt to create additional radio channels which are needed in the large metropolitan areas, such as New York and Los Angeles, where all radio spectrum is utilized.

The FCC intends to reduce the occupied bandwidth of existing users of the VHF high band and UHF band to in effect, produce more

Project 25 and a detailed inspection by their Home Office of larger coverage systems in the United States. Small, low powered systems have specific applications, but do not fill the wide area (state, regional, county) requirements of many of today's public safety and commercial systems.

2. Received audio volume will also be reduced 40% to 60%, requiring audio gain (amplification) to be increased. Increased amplification also increases noise which may effect intelligibility. Many public safety agencies scan a number of frequencies, often from other local agencies. This is an issue of officer safety for many police agencies, especially those with overlapping jurisdiction. If all agencies being scanned do not reduce deviation simultaneously, output volume will vary greatly between channels making this feature unusable.

Available audio recovery power available in portable and mobile units used in high noise environments (police crowd control, fire apparatus, etc) may not be sufficient to allow radios transmitting with reduced deviation to be heard by the user.

Most current receivers do not use the concentrated or "lumped" circuit designs that allowed earlier receiver IF bandwidths to be easily reduced when channel widths were reduced in the past. Additionally, these integrated designs have been optimized for several characteristics, including selectivity, sensitivity, desensitization, and IM rejection. Changing one part of a design impacts all other characteristics. It is therefore impractical, if not impossible, to reduce the bandwidth of today's receivers.

Reduced deviation will remove approximately 50% of tone squelch decoder margin above threshold of detection. This will lead to system failure.

3. It may be possible to reduce deviation on some older transmitters by a field adjustment. Equipment manufactured since the early 1980's utilizes different technology; some will not have sufficient adjustment capability for deviation reduction to required levels. This limitation is equipment-specific and must be determined by each manufacturer.
4. Many of today's transmitters are type accepted by the FCC for a single (or defined range of) power output(s). Attempts to reduce output power below these levels to comply with Section 88.429 will most likely result in spurious emissions.
5. There is no assurance that late model equipment using synthesized frequency control can shift to the offset frequencies required in the new table of allocations. Much, if not most, of the newer equipment will not be capable of shifting.
6. Digital encryption will not work with reduced de-

7. Reduced deviation at the initial stage of implementation will render public safety paging receivers unreliable, if not inoperative, as they are designed to operate at the full 5 kHz.

Commercial paging frequencies are grandfathered at 5 kHz, necessitating development of a special product for public safety paging for the vital purpose of alerting emergency police, medical, and especially fire personnel.

8. New offset frequency requirements and more stringent frequency tolerances will render obsolete most current test equipment.

- E. There is no apparent graceful migration path or means for old equipment to communicate with new 5.0/6.25 kHz equipment, thus necessitating complete change out of systems.

1. There is no interoperability during changeover period (which could be several years) as different agencies change on different schedules. Project 25 spent extensive resources to research migration schemes and provide both backward/forward interoperability which is negated by this proposal.
2. The interoperability impact will, in most cases, render mutual aid plans unusable throughout the changeover period. In states that are large both geographically and by population (California, Florida, Texas, etc.) statewide mutual aid communications will be impacted throughout the transition period as metro areas change early, followed by rural areas many years later.

- F. Section 88.231, as written, precludes mobile relay operation as it presently exists in the 150-174 MHz band for the Public Safety Services.

1. Thousands of public safety systems (city, county, regional and state) now use mobile relays. How can they continue to operate? When must they reduce bandwidth? Vacate current channels? Where can they go?
2. Designating many new channels as "mobile only" or "low power" has the same effect; 150-174 MHz systems as we know them today will vanish or must undergo dramatic change.
3. NEW ALLOCATIONS developed from splitting of current public safety channels in the 150-174 MHz band should be paired and assigned for exclusive public safety use.

2. Labor disputes impacting the 3rd party leave public safety with little control, whereas government employees are usually prohibited from striking.
 3. Licensees have always been able to contract with a 3rd party to provide communications; with current method, public safety retains control of licenses and, thus, always has frequencies available.
- F. Dual rules apply for low power channels. Section 88.909 specifies 2 watt transmitter output provided the antenna does not exceed 20 feet above ground. This could, and does, result in 20 or more watts of ERP with an HAAT of several thousand feet. Section 88.429 limits power to 5 watts ERP if located in excess of 590 feet above HAAT. The potential for interference from quote "low powered stations" can be as much as 10 dB greater than from a conventional station when located at high HAAT.
- G. Although it might be contended that public safety gains additional channels by making them eligible in the General Category pool, examination of licenses will show that historically, in instances such as the 150 800 MHz General Access and the TV-shared 470-512 MHz pooled frequencies, public safety accounts for less than 1% of all licenses. Public safety can not successfully compete for channels on an even basis with non-public safety entities due to widely differing channel requirements and funding cycles.

- C. The lack of statewide exclusive channels will virtually eliminate the possibility of any wide-area government systems. It will not be possible for states, especially large states like those previously listed, to secure a statewide assignment due to competition for spectrum from other users in the major metropolitan areas.
- D. Assigning two channels to an entity that has met the time requirements for narrowband changeover proposed in Section 88.245 will not necessarily provide a usable system unless the entity can make wideband use of both frequencies. Adjacent channel interference could make either or both assignments unusable as individual channels.

F. Current proposal would actually require more spectrum to provide coverage. Coverage is required, so users will have to add more transmitter sites to cover current area, plus use additional spectrum (microwave or fixed links) to interconnect these sites. In many cases, the individual agencies will opt for additional frequencies to provide required coverage to avoid the expense of installing simulcast systems, thus requiring two or more times the initial number of channels.

G. Firm ERP rules can apply at most on a local or regional

C. Availability of highly linear amplifiers is an absolute requirement for the narrow bandwidths (5 or 6.25 kHz) being proposed. The question is: when will these be commercially available in a usable size at an affordable price within the required frequency bands?

1. Amplifier power consumption must be considered; linear amplifiers are not power efficient. While this is critical for portable equipment (due to battery service per charge), it is important for environmental and economical reasons in all equipment.

D. Use of Amplitude Modulation Technology

Many of today's sites, both commercial and public safety, are located in congested areas near or on private residence buildings. The use of high power non-constant carrier methods of modulation will result in audio frequency rectification in many of types of household and ~~commercial entertainment equipment~~ ^{libraries}

Table C-3 150-216 MHz ERP/Antenna Height

Antenna height above average terrain (HAAT) meters (feet)	Effective radiated power (ERP) (watts)
Up to 60 (197)	300
60-75 (197-246)	190
75-90 (246-295)	120
90-120 (295-394)	75
120-180 (394-590)	30
Above 180 (590)	5

(e) 216-220 MHz. Requested transmitter power will be considered and authorized on a case-by-case basis.

(f) 220-222 MHz. The permissible ERP with respect to antenna heights will be authorized in accordance with Table C-4. These are maximum values and applicants are required to justify power levels requested. In this band, Channels 196-200 are limited to 2 watts ERP and a maximum antenna height of 6.1 m (20 ft) above ground. The maximum permissible ERP for mobile units is 50 watts. Portable units are considered as mobile units.

Table C-4 220-222 MHz ERP/Antenna Height

Antenna height above average terrain (HAAT) meters (feet)	Effective radiated power (watts) ¹
Up to 150 (492)	500
150-225 (492-738)	250
225-300 (738-984)	125
300-450 (984-1476)	60
450-600 (1476-1968)	30
600-750 (1968-2460)	20
750-900 (2460-2952)	15
900-1050 (2952-3444)	10
Above 1050 (3444)	5

¹ Transmitter PEP will be used to determine ERP.

(g) 421-430 MHz. Base station authorizations in the 421-430 MHz band will be subject to effective radiated power (ERP) and effective antenna height (EAH) limitations as shown in the Table below. ERP is defined as the product of the power supplied to the antenna and its gain relative to a half-wave dipole in a given direction. EAH is calculated by subtracting the assumed

(5) Contiguous channels (non-standard bandwidths) may be authorized for systems requiring more than the normal single channel bandwidth provided the system meets the spectrum efficiency standard in § 88.433. If necessary, licensees may, with license modification, trade channels among themselves in order to obtain contiguous frequencies.

(6) Unless specified elsewhere, channel spacings and bandwidths that will be authorized in the following frequency bands are given in Table C-1.

Table C-1 Standard Channel Spacing/Bandwidth			
Frequency band MHz	Channel spacing (kHz) 2	Authorized bandwidth (kHz)	
		1	2
Below 25	---	---	---
25-50	20	20	20
72-76 Fixed	20	20	20
72-76 Mobile	5	10	4
150-174	5	12	4
216-220	---	---	---
220-222	5	4	4
420-512 ³	6.25	10	5
806-821	25	20	20
821-824	12.5	20	20
851-866	25	20	20
866-869	12.5	20	20
896-901	12.5	13.6	13.6
929-930	25	20	20
935-940	12.5	13.6	13.6
1427-1435	---	---	---
2450-2483.5	---	---	---
Above 2500	---	---	---

¹ Stations authorized prior to (eff date of rules) must meet this bandwidth requirement by January 1, 1996 and, where applicable, must reduce bandwidth by the appropriate date listed in § 88.433(d) to conform with stations authorized pursuant to Note 2.

² For stations authorized after xxxx (eff date of rules).

³ Bandwidths for radiolocation systems in the 420-450 MHz band will be reviewed and authorized on a case-by-case basis.

§ 88.417 Modulation requirements.

Each transmitter must meet the requirements provided in paragraphs (a) or (b) of this section. The requirements of this paragraph do not apply to

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9. The private sector will also be impacted and the economic drain will be felt throughout the economy.
10. National APCO has indicated that the dates for comments has been extended to May 28.